REMARKS

Claims 1-28 are pending in the application.

By the foregoing Amendment, claims 1, 13, 15, and 24 are amended, claims 25-28 are added, and claims 11 and 12 are canceled without prejudice or disclaimer.

Claims 1 and 15 are amended to more precisely define how the analyte is immobilized on the ferroelectric transducer, to specify that the ferroelectric transducer has a planar test surface, and to more precisely define how the analyte is sensed. Support for the amendments to claims 1 and 15 is found in paragraphs [0019], [0021], and [0032] of the application as filed.

Claims 13 and 24 are amended in light of the amendments to claims 15 and 24, respectively.

Support for claims 25, 26 and 27 is found in paragraph [0021]. Support for claim 28 is found in paragraph [0022].

These changes are believed not to introduce new matter, and entry of the Amendment is respectfully requested.

Based on the above Amendment and the following Remarks, Applicant respectfully requests that the Examiner reconsider all outstanding rejections, and withdraw them.

Rejections under 35 U.S.C. § 103

1. Claims 1-3, 6-13, 15-19, and 21-24

On page 3 of the Office Action, claims 1, 6-13, 15-19, and 21-24 were rejected under section 103(a) as being unpatentable over Stasiak in view of Ewart; and on page 6, claims 2 and 3 were rejected under section 103(a) as being unpatentable over Stasiak in view of Ewart. These rejections are believed to be overcome by the foregoing amendments to claims 1 and 15.

Claims 1 and 15 have been amended to recite that the transducer has a planar test surface. In contrast, Stasiak teaches the use of nanowires, which do not provide a planar test surface.

The Office Action characterizes Stasiak as teaching that "[t]he electrode with the functional layer comprises nanowires that are coated with a dielectric material," citing column 3, lines 27-29 and column 4, lines 9-12, and that they can immobilize biomolecules, such as antibodies, thereon, citing column 8, lines 23-26. It is respectfully submitted that this characterization of Stasiak is in error, in that the sensor in Stasiak does not "immobilize" analytes to the sensor.

Although Stasiak discloses using nanowires coated with a dielectric material, it does not teach or suggest to a person of skill in the art the desirability of immobilizing an analyte on such a structure. In column 3, lines 27-29, it is disclosed that,

> "the free-standing nanowires can be funtionalized ... specifically configured to recognize a specific molecule",

and further in column 8, lines 50-60 (emphasis added),

> "coating can be a composition that is reactive with a specific analyte, wherein, upon reaction, a charge transfer occurs that can be sensed electrically...such that an altered free charge will attract or attach to an analyte. For example, as an analyte gets stuck to the surface of the dielectric layer, an unbalanced charge will induce a counter charge in the nanowire and form a nano-parallel plate capacitor".

As it can be seen, the nanowires in Stasiak do not immobilize but only to transfer a charge to the analyte. Comparatively, the test layer in the present invention will selectively capture or bind the target analytes, as recited in claims 1 and 15 and as explained in paragraph [0021] of the present application, thus immobilizing them.

As explained in the Response to the Office Action dated May 12, 2009, the immobilization of the analytes to the transducer is essential in the working of the claimed

invention. In the presence of an electric field, the (immobilized) analyte in the sample is polarized, which has an effect on the ferroelectric transducer. A sensor can then be used to sense an electric response of the ferroelectric transducer resulting from the effect of the electric field in the sample on the ferroelectric transducer, and indicative of the presence of said analyte in the sample. In other words, the present invention relies on the continued presence of the analyte on the test surface because the polarization of the analyte is required to produces an effect on the ferroelectric transducer.

In the Office Action, it was conceded that "Stasiak does not, however, teach a ferroelectric material on the transducer"; and Ewart was cited as supplying this teaching, specifically "a method of optimizing a capacitive sensor device by including a dielectric made from ferroelectric ceramic."

In contrast to the present invention, in Ewart, measurement of the amount of analyte in the sample is based on a change in capacitance in the electrodes resulting from *the removal of the analytes from the test surface*, together with the reporter particles to which the analytes are attached. If a person of skill in the art were to modify Stasiak to employ a dielectric material as taught by Ewart, as suggested in the Office Action, he or she also presumably would adopt Ewart's measurement method, which requires removal of the analyte from the test surface. Thus, applicant's claimed invention would not result from the proposed combination of Stasiak and Ewart. Further, Ewart does not teach or suggest a test surface having a specific affinity to the analyte for selectively capturing or binding said analyte in said sample.

From Stasiak, a person of ordinary skill in the art would learn to use the dielectric material to "recognize" a specific molecule and then attach a charge to it. And since there is no teaching or suggestion in Stasiak or Ewart to use the dielectric material to, in any sense,

selectively capture or bind a target analyte, it is respectfully submitted that a person of ordinary skill in the art would not and could not have been able to arrive at the present invention of immobilizing an analyte in a sample by providing a ferroelectric transducer with a test surface having a specific affinity to the analyte for selectively capturing or binding said analyte in said sample.

It is therefore respectfully submitted that the invention as recited in claims 1-3, 6-13, 15-19, and 21-24 is neither anticipated nor rendered obvious by Stasiak in combination with Ewart; and that the rejection should be withdrawn.

3. *Claim 14*

On page 7 of the Office Action, claim 14 was rejected under section 103(a) as being unpatentable over Stasiak in view of Ewart, and further in view of Pankratz. This rejection is believed to be overcome by the foregoing amendment to claim 1, from which claim 14 indirectly depends.

In the Office Action, it was conceded that Stasiak and Ewart "do not teach the step of 'removing a remaining portion of said sample,'" as recited in claim 14; and Pankratz was cited as supplying this teaching. Pankratz teaches an immunoassay for determining the enzymatic activity of creatine kinase-MB isoenzyme in liquid samples. There is nothing in Pankratz to remedy the deficiencies of Stasiak and Ewart with respect to the method as recited in claim 1. Therefore, Stasiak and Ewart in combination with Pankratz cannot teach or suggest the method as recited in claim 1, much less the method as recited in claim 14.

It is therefore respectfully submitted that the invention as recited in claim 14 is neither anticipated nor rendered obvious by Stasiak and Ewart in combination with Pankratz; and that the rejection should be withdrawn.

Conclusion

All rejections have been complied with, properly traversed, or rendered moot. Thus, it now appears that the application is in condition for allowance. Should any questions arise, the Examiner is invited to call the undersigned representative so that this case may receive an early Notice of Allowance.

Favorable consideration and allowance are earnestly solicited.

Respectfully submitted,

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